

## **EXHIBIT 12**

**From:** Michael Glasgow <mglasgow@cityofflint.com>  
**Sent:** Wednesday, March 26, 2014 2:35 PM  
**To:** Brad Hill  
**Cc:** Brent Wright; Daugherty Johnson; Robert Case  
**Subject:** Re: MAIL Allocation

Brad,

Good afternoon, I hope all is well. Here are some estimations and explanations to you inquiry.

(1) I believe 500,000 gallons per day would be a generous approximation of back wash water.

Daily filter backwash flow will vary day to day depending on the efficiency of our softening process. Each filter backwash will use approximately 150,000 gallons (minimum 128,000 gal to max 157,500 gal). If I had to give an estimate, I would say we would have to backwash 6 filters a day for a maximum flow of 945,000 gallons each day. With that being said, regulations allow us to recycle our filter backwash up to 10% of our daily treatment rate back to the head works of the plant. So, if we are treating at least 10 MGD, theoretically we could recycle all of our backwash water back to the plant head works. I do not believe this will be the case each day. If the softening process experiences problems, we could double the amount of filter back-washing per day.

(2) I can only estimate the TSS, & pH. TSS may be around 300 mg/L, and the pH should be around 9.0 S.U. The TSS value may vary depending on filter run time. The pH of our finished water will be near 8.0 S.U., but I'm anticipating that to increase due to lime carry over into the filters.

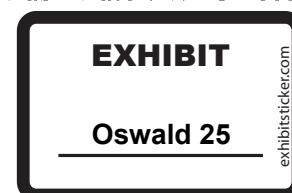
Prior to the water plant sending backwash water to the sanitary sewer, we were regulated by our NPDES permit to discharge the backwash water to the river. We were only required to test pH, TSS, and TRC. I imagine we will have a considerable amount of TBOD, but it has never been tested to my knowledge. There will be at least 1 mg/L of total phosphorous, because we will be adding phosphate at that level for corrosion control in the distribution system, and I expect more depending on the river water quality. I would expect the metals, cyanide, and VOC's on your list to be negligible. The most recent testing of the river and filter effluent showed that results were less than the detection limit in most cases, and all of our treatment chemicals are NSF certified so they should not contain any significant amounts of these chemicals.

I hope this helps at least a little. If you need more specific information we may have to look into future testing.

Mike

On Tue, Mar 25, 2014 at 7:14 PM, Brad Hill <bhill@cityofflint.com> wrote:  
Mike:

WPC needs to calculate permit limits for industrial sanitary sewer users from maximum allowable industrial loading for a number of pollutants that may be in Water Plant filter backwash water. WPC needs to develop a mass balance for this, which accounts for Water Plant pollutant loading.



Do you know (1) what the average daily flow of the backwash water will be and (2) what the daily average concentrations will be in it for: TBOD, ammonia-nitrogen, Total Suspended Solids, Total Phosphorus, Oil and Grease, Arsenic, Cadmium, Total Chromium, Copper, Lead, Mercury, Nickel, Silver, Zinc, Amenable Cyanide, Benzene, Ethylbenzene, Toluene, Xylenes, and PCB? And what will the pH of the water be?

If so, please provide representative data.

Thanks.

Brad Hill

----- Forwarded message -----

From: **Robert Case** <[rcase@cityofflint.com](mailto:rcase@cityofflint.com)>

Date: Tue, Mar 25, 2014 at 4:20 PM

Subject: Re: MAIL Allocation

To: Brad Hill <[bhill@cityofflint.com](mailto:bhill@cityofflint.com)>

Cc: Thomas Hutchings <[thutchings@cityofflint.com](mailto:thutchings@cityofflint.com)>, Daugherty Johnson <[djohnson@cityofflint.com](mailto:djohnson@cityofflint.com)>

For sure, you should consult with the water plant first. They should have some actual data regarding the water quality of this discharge. If not, they should be able to give a reasonable estimate.

As I understand it, they will discharge into a lagoon. If that is the case, we would need to know the quality of the lagoon overflow.

Jerry would have some general ranges, but we need more precise data or at least good estimates for our particular plant..

On Tue, Mar 25, 2014 at 1:38 PM, Brad Hill <[bhill@cityofflint.com](mailto:bhill@cityofflint.com)> wrote:  
Bob:

Now that the WPCF will be receiving Water Plant filter backwash water every day, the pollutant loadings should be allocated along with industrial user loadings, not for regulating the Water Plant discharge, but only to be able to show that they were considered when calculating sewer use permit limits for regulating the industrial users. The permit limits need to be determined soon as the permits will expire in only a few months.

Tom Hutchings said that Jerry Thaler has information about this. However, it is not in his maximum allowable headworks loading reports, probably because it was something to consider when allocating the allowable loadings to industrial users and did not need to be considered when calculating them.

Can I contact Jerry to get this information, or should I get it from the Water Plant?

Brad